REMARKS

Claims 27-52 are pending in the application. Claims 27-52 stand rejected. No new matter is believed to be introduced by way of these remarks.

35 U.S.C. 102 Rejections

Claims 27 and 52 stand rejected under 35 U.S.C. 102(b) as being anticipated by Virtanen *et al.* (U.S. 6,402,919, hereinafter "Virtanen").

Before responding to the specific rejections, Applicants believe a brief description of the claimed invention may be useful.

Applicants' Claim 27 as originally filed recites:

> An apparatus for performing capillary electrophoresis, comprising: ...
> a controller operatively coupled to the input valve and including executable instructions to **convert** and execute **operational input** to control the valve for providing a sample of the liquid source to the capillary electrophoresis column. (emphasis added)

An example reason given by Applicants for "convert[ing] and execut[ing] operational input" as in Claim 27 is presented in the Specification as originally filed at page 31, lines 17-23:

> The representative script [comprising operational input] may be referred to as a physical layer ... [that] permit[s] a chemist or operator to program the operation in an english-like [sic] language that provides an intuitive understanding for the programming. Use of this technique permits the manufacturer of the system 1500 to "hard code" the physical operation of the system 1500 while permitting the end user to "soft code" the operational input 1615 for customizing or modifying a process based on empirical or calculated process flows.

An example of operational input is provided by Applicants at pages 31-32 of the Specification as originally filed.

The Office Action states, at page 2, part 2, that Virtanen discloses an apparatus for performing capillary electrophoresis and that elements of Applicants' Claim 27 are "implied by [Virtanen at] col. 03:36-37, which states, 'Operation of the entire apparatus can be controlled by means of a micro-processor.'"

Applicants respectfully disagree. MPEP 706.02 states, "[F]or anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present."

Respectfully, "converting and executing operational input" as in Claim 27 cannot reasonably be construed as being impliedly taught by Virtanen's very general statement at col. 3, lines 36-37 ("Operation of the entire apparatus can be controlled by means of a micro-processor"). A standard microprocessor implementation of controlling Virtanen's apparatus typically would execute instructions provided in assembly language (or another low-level language). If using standard microprocessor programming techniques as known in the art prior to Applicants' application filing, Virtanen's microprocessor would be able to accept data at input data pins, process the data internally, and output results of the processing at output data pins. Virtanen's microprocessor might also be reprogrammable via programming pins, in which case, the microprocessor would have its existing program replaced with another program that would cause the microprocessor to process data received at its input data pins differently from how it would be processed by its overwritten program.

If, instead of data, Virtanen's microprocessor were presented with "operational input," then, without a specific teaching by Virtanen about his microprocessor and programming thereof, Applicants must assume Virtanen's microprocessor would either experience a fault condition or, alternatively, simply ignore the "operational input" if operating in a manner commonly known in the art absent Applicants' teachings.

The reason Virtanen's microprocessor would experience a fault is in a case Virtanen's program configures Virtanen's microprocessor to expect electrophoresis data for processing. In this case, "operational input" would be interpreted by Virtanen's microprocessor as electrophoresis data (since communications with, for example, digital microprocessors are in the form of digital 'ones' and 'zeros' regardless of whether the communications are data or operational input). Virtanen's microprocessor would then produce a result that it would either (i) output to the electrophoresis system, potentially causing a failure in the physical electrophoresis, or (ii) trap as a processing fault based on a calculation error because the operational input would likely be recognized as out-of-range if interpreted as electrophoresis data. In the alternative, the reason Virtanen's microprocessor might ignore the operational input is because Virtanen's

microprocessor would not be programmed to identify it as operational input (as opposed to electrophoresis data) or because Virtanen's microprocessor would not be physically configured to accept operational input.

In view of the foregoing and based on the guidance provided by MPEP 706.02, Applicants respectfully submit Virtanen does not anticipate or suggest, explicitly or impliedly, every element of Applicants' Claim 27 ("a controller ... to convert and execute operational input"). Accordingly, Applicants respectfully submit that the rejection of Claim 27 under 35 U.S.C. 102(b) is improper and should be withdrawn.

Base Claim 52 includes similar elements as Claim 27 with respect to the foregoing patentably distinguishable elements and should therefore be allowed as well.

35 U.S.C. 103 Rejections

Dependent Claims 28-51, which stand rejected under 35 U.S.C. 103(a) as being unpatentable over Virtanen in view of other references, include the elements of base Claim 27 and should therefore be allowed for at least the same reasons as presented above.

Furthermore, Applicants respectfully submit that Claim 32, which stands rejected as being unpatentable over Virtanen in view of Nikiforov *et al.* (U.S. 7,060,171, hereinafter "Nikiforov"), is patentable for the additional reason that the claim recites "executable instructions convert[ing] the operational input by **interpreting** program instructions" (emphasis added).

The Office Action states on page 11:

> Virtanen does not mention whether the executable instructions convert the operational input by interpreting program instructions. However, it would have been obvious to one with ordinary skill in the art at the time of the invention to have the executable instructions convert the operational input by interpreting program instructions because then the user of the apparatus will not have to worry about how the controller will implement the operational input. It should be noted in this regard that as shown by Nikiforov it was known at the time of the invention to use an appropriately programmed computer to instruct a controller in a microchannel electrophoresis system. See col. 08:05-14.

Applicants respectfully disagree. As stated in the Specification at page 31, "the operational input 1615 may be software instructions, such as BASIC software instructions, that

are interpreted in a real-time or pseudo-real-time manner by the compiled software." As stated above, this technique enables "chemist[s] or operator[s] to program the operation in an English-like language that provides an intuitive understanding for the programming" [Specification, page 31]. Claim 32's recitation of "executable instructions convert[ing] the operational input by **interpreting** program instructions" (emphasis added) permits "the end user to 'soft code' the operational input 1615 for customizing or modifying a process based on empirical or calculated process flows" [Specification, page 31]. This use of interpreted (as opposed to compiled) instructions provides flexibility not found in conventional electrophoresis systems.

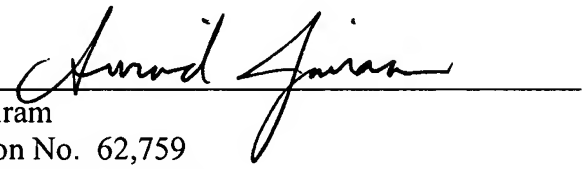
Contrary to the suggestion in the Office Action, Nikiforov does not teach the use of an interpreted language. Furthermore, standard microprocessor implementations for automated systems use compiled components based on assembly language (or other low-level languages) without taking into account i) operators who might prefer English-like languages; and ii) advantages of dual "hard code / soft code" functionality with respect to end users. Therefore, it would not have been obvious to one of ordinary skill in the art to use "executable instructions [that] convert the operational input by interpreting program instructions" as in Claim 32.

CONCLUSION

In view of the above remarks, it is believed that all currently pending claims (Claims 27-52) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By 

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